AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A producing method of a porous Si_3N_4, comprising the steps of:

(a) mixing, as a first sintering agent, powder of at least one compound of a rare earth element in an amount of 7.5-45 parts by mass in terms of an oxide of the element with respect to 100 parts by mass of Si powder to obtain mixed powder;

(b) adding a binder to the mixed powder;

(c) molding the mixture of the mixed powder and the binder into a molded body;

(d) heating the molded body in a nitrogen atmosphere to 300-500°C to remove the binder therefrom to form a binder-removed body;

(e) nitriding the binder-removed body by heating the same in a nitrogen atmosphere to 1350-1500°C to form a nitrided body including Si_3N_4; and

(f) sintering the nitrided body at 1750-1900°C at a nitrogen pressure of ~~0.1-1~~ 0.1-0.5 atmosphere to make Si_3N_4 decompose and re-precipitate, to thereby obtain thinner columnar crystals of Si_3N_4.

2. (Original) The producing method of a porous Si_3N_4 according to claim 1, wherein said mixing step includes the step of further mixing, as a second sintering agent, powder of at least one compound selected from compounds of IIa group elements, IIIb group elements, IVb group elements and transition elements in an amount of 0.05-5 parts by mass in terms of an oxide of the element with respect to 100 parts by mass of the Si powder.

3. (Original) The producing method of a porous Si_3N_4 according to claim 1, wherein said nitriding step is conducted in the nitrogen atmosphere of 3-10 atmospheres.

Claims 4-8 (Canceled)

9. (Currently Amended) A producing method of a porous Si_3N_4, comprising the steps of:

(a) mixing, as a first sintering agent, powder of at least one compound of a rare earth element in an amount of 7.5-45 parts by mass in terms of an oxide of the element with respect to 100 parts by mass of Si powder to obtain mixed powder;

(b) adding a binder to the mixed powder;

(c) molding the mixture of the mixed powder and the binder into a molded body;

(d) heating the molded body in a nitrogen atmosphere to 300-500°C to remove the binder therefrom to form a binder-removed body;

(e) nitriding the binder-removed body by heating the same in a nitrogen atmosphere of 3-10 atmospheres to 1350-1500°C to form a nitrided body <u>including Si_3N_4</u>; and

(f) sintering the nitrided body at 1750-1900°C at a nitrogen pressure of 0.1-0.5 atmosphere <u>to make Si_3N_4 decompose and re-precipitate, to thereby obtain thinner columnar crystals Si_3N_4</u>.